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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/899,184	07/06/2001	Kazuaki Tashiro	35.C15537	2691

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EXAMINER

MORAN, TIMOTHY J

ART UNIT PAPER NUMBER

2878

DATE MAILED: 01/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/899,184

Applicant(s)

TASHIRO ET AL.

Examiner

Timothy J. Moran

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-6,10-12,15,16,22-30,40,44 and 46-65 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 30, 46, 48, 50, 53, 57, and 61 is/are allowed.
- 6) ☒ Claim(s) 1,4-6,10-12,15,16,22-29,39,40,44,47,49,51,52,54-56,58-60 and 62-65 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

After further review, the Examiner agrees that all references mentioned in the specification were submitted with a PTO-892 form.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 4-6, 12, 15, 23, 25, 51, 55, 59, and 63-65 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "scan circuit is arranged between two photoelectric conversion units" is unclear since the size of the scan circuit and the location of the two photoelectric conversion units have not been described. For example, in fig. 9, is the structure 501B an example of a "scan circuit"? If so, which are the two pixels described in the claim?

Claims 16, 22, 24, and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "plurality of transfer switches is arranged between two photoelectric conversion units" is unclear since the size of the switches and the location of the two photoelectric conversion units have not been described. For example, in fig. 9, is the structure 501B an example of a "transfer switch"? If so, which are the two pixels described in the claim?

Claims 27, 28, 29, 47, 49, 54, 39, 40, 44, 58, and 62 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "protection circuit is arranged between two photoelectric conversion units" is unclear since the size of the circuit and the location of the two photoelectric conversion units have not been described. For example, in fig. 9, is the structure 501B an example of a "protection circuit"? If so, which are the two pixels described in the claim?

Claims 52, 10-11, 56, and 60 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "vertical scan circuit and horizontal scan circuit are arranged between two photoelectric conversion units" is unclear since the size of the scan circuits and the location of the two photoelectric conversion units have not been described. For example, in fig. 9, are the structures 501B and 507B examples of such scan circuits"? If so, which are the two pixels described in the claim?

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 12, 15, and 51 are rejected under 35 U.S.C. 102(b) as being anticipated by Fossum, PCT Application WO 99/31874. Fossum describes an image pickup apparatus comprising a plurality of image pickup elements (fig. 1), wherein each image pickup element includes a scan circuit (fig. 3., drivers 300 and 302, page 4, lines 12-26) which is arranged between two photoelectric conversion units.

Regarding claim 12, Fossum describes a scan circuit which is arranged in a second direction different from a first direction, along which the scan circuit supplies readout pulses, as implied by the term "driver" (fig. 3., drivers 300 and 302, page 4, lines 12-26).

Regarding claim 15, the use of an electric power supply line in a scan circuit is implied by the term "driver."

Regarding claim 51, the term "driver" implies the presence of transfer switches.

Claims 16 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Cox, U. S. Patent No. 5,464,984. Regarding claims 16 and 22, Cox describes an image pickup apparatus comprising a plurality of image pickup elements (fig. 3) and a plurality of pickup switches (420, col. 6, lines 2-18) arranged between two photoelectric conversion units in the same image pickup element.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 4-5 and 63-64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fossum as applied to claims 1 and 51 above, and further in view of Ichikawa, U. S. Patent No. 6,127,998. Fossum does not teach the use of a static shift register. However, Ichikawa teaches (abstract) that static shift registers can be used to provide signals to pixel-based devices. Therefore it would have been obvious to one of ordinary skill in the art to provide static shift registers in the apparatus of Orava for the benefit of providing voltages to pixels.

Claims 6 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fossum as applied to claims 1 and 51 above, and further in view of Orava, U. S. Patent No. 6,035,013. Fossum does not teach the use of a static shift register. However, Orava teaches (col. 5, lines 58-62) that static shift registers can be used to provide signals to pixel-based devices. Therefore it would have been obvious to one of ordinary skill in the art to provide static shift registers in the apparatus of Orava for the benefit of providing voltages to pixels.

Claims 23, 25, 55, and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schick, U. S. Patent No. 5,912,942 in view of Fossum. Regarding claim 23, Schick describes an image pickup apparatus formed on a semiconductor substrate, a scintillator plate and a fiber optic plate (fig. 2B, col. 6, lines 26-34) and a scan circuit (col. 8, lines 42-55), but does not teach that the scan circuit be arranged between two photoelectric conversion elements in the same image pickup element (fig. 4A and fig. 4B). However, Fossum teaches that by such an arrangement, large detector areas can be produced (page 2, lines 5-12). Therefore it would have been obvious to one of ordinary skill in the art to provide for the arrangements of Fossum in the apparatus of Schick for the advantage of produce large area detectors.

Regarding claim 25, Schick teaches (col. 10, lines 35-65) the use of a signal processing unit (CPU 61), a recording circuit (box 60), a display circuit (monitor 62), and a radiation source (col. 6, lines 1-5).

Regarding claims 55 and 59, all limitations are discussed above.

Claims 24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schick, U. S. Patent No. 5,912,942 in view of Cox. Regarding claim 23, Schick describes an image pickup apparatus formed on a semiconductor substrate, a scintillator plate and a fiber optic plate (fig. 2B, col. 6, lines 26-34) and a transfer circuit (col. 8, lines 42-55), but does not teach that the transfer circuit be arranged between two photoelectric conversion elements in the same image pickup element (fig. 4A and fig. 4B). However, Cox teaches that by such an arrangement, convenient averaging can be performed (fig. 3, col. 6, lines 2-18). Therefore it would have been obvious to one of

ordinary skill in the art to provide for the arrangements of Cox in the apparatus of Schick for the advantage of convenient averaging.

Regarding claim 26, Schick teaches (col. 10, lines 35-65) the use of a signal processing unit (CPU 61), a recording circuit (box 60), a display circuit (monitor 62), and a radiation source (col. 6, lines 1-5)

Allowable Subject Matter

Claims 46, 48, and 50 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: Claim 46 includes limitations describing specific locations of external terminals in neighboring regions and a wiring line in an imaging apparatus.

Claims 53, 30, 57, and 61 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: Claim 53 includes limitations that an external terminal is arranged on an image pickup apparatus between two photoelectric conversion units in the same image pickup element.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Moran whose telephone number is 703-305-0849. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 703-308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7724 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

TM
January 8, 2003


DAVID PORTA
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